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Allen A. Aradi

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EXAMINER

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/696,618
Filing Date: October 29, 2003
Appellant(s): ARADI ET AL.

John H. Thomas
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed February 25, 2008 appealing from the Office action mailed October 31, 2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

3,179,506	HENDERSON	4-1965
5,401,280	KANEKO	03-1995

KALGHATGI, G., Combustion Chamber Deposit Flaking, October 2000, SAE Technical Paper Series, pp. 1-12

Declaration of Allen A. Aradi executed November 17, 2006

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-8, 12-22 and 26-28 rejected under 35 U.S.C. 103(a) as being unpatentable over Dorer (US 4,664,677) in view of Kalghatgi.

Dorer teaches a fuel composition for internal combustion engines comprising a manganese containing compound and a copper-containing compound (see abstract). The disclosure of internal combustion engine encompasses a spark ignited internal combustion engine having a fuel injection system and 6 or more cylinders as set forth in claims 12, 14, 26 and 28, absent evidence to the contrary. The compounds may be inorganic or organic. Examples of the inorganic compounds include manganese oxides, manganese hydroxides, manganese carbonates, copper oxides, copper hydroxides,

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manganese carbonates, copper oxides, copper hydroxides, and copper carbonates (see col. 1, line 65 through col. 2, lines 1-2). The organic compounds may be salts of carboxylic, sulfonic and phosphorus acid (see col. 2, lines 7-17). The fuel compositions have a combined manganese and copper content of about 1-1000 ppm and the fuel may be gasoline (encompasses unleaded) or diesel (see col. 7, lines 13-18, 26-43, Examples VI and VII). Dorer teaches that the fuel additive of his invention reduces engine deposits (see col. 1, lines 50-55).

Dorer teaches the limitations of the claims other than the methods of claims 1 and 15. However, the discovery of a previously unappreciated property of a prior art composition does not render the old composition patentably new to the discoverer. Thus, the claiming of a new use, new function or unknown property does not necessarily make the claims patentable.

Furthermore, Kalghatgi teaches that the use of conventional detergent additive packages makes the combustion chamber deposit (CCD) less likely to flake.

Since the metal compounds of Dorer function as detergents and Kalghatgi teaches that detergents reduce flaking, it would have been reasonable to expect that Dorer would have reduced combustion chamber deposit flaking.

With respect to the method of reducing cold start emissions, it would have been reasonable to expect that Dorer also meets this limitation since his additives reduce the ignition temperature of particulates and reduces emissions.

3. Claims 1-3, 6-10, 12-17, 20-24 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henderson (US 3,179,506) in view of Kalghatgi.

Henderson teaches a hydrocarbon fuel of gasoline (encompasses unleaded) for use in spark ignition internal combustion engines wherein the fuel comprises methylcyclopentadienyl manganese tricarbonyl (see claim 4). The disclosure of spark ignition internal combustion engines suggests a fuel injection system and 6 cylinder engine as set forth in claims 12, 14, 26 and 28, absent evidence to the contrary. Henderson teaches that the fuel does not lay down combustion chamber deposits (see col. 2, lines 15-19). The manganese compound is present in the fuel in an amount up to 2 g/gal fuel (see col. 6, lines 26-30).

Henderson teaches the limitations of the claims other than the methods of claims 1 and 15. However, the discovery of a previously unappreciated property of a prior art composition does not render the old composition patentably new to the discoverer. Thus, the claiming of a new use, new function or unknown property does not necessarily make the claims patentable.

Furthermore, Kalghatgi teaches that the use of conventional detergent additive packages makes the combustion chamber deposit (CCD) less likely to flake.

Since the metal compounds of Henderson function as detergents and Kalghatgi teaches that conventional detergents reduce flaking, it would have been reasonable to expect that Henderson would have reduced combustion chamber deposit flaking and by reducing the flaking would also have reduced cold start emissions.

4. Claims 11 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henderson and Kalghatgi as applied to claims above, and further in view of Kaneko (US 5,401,280).

Henderson has been discussed above. Henderson fails to teach the sulfur content of the gasoline.

However, Kaneko teaches this difference. Kaneko teaches gasoline compositions wherein the maximum sulfur content of the gasoline is 50 ppm or less (see col. 3, lines 15-20).

It would have been obvious to one of ordinary skill in the art to have selected a gasoline comprising less than 30 ppm sulfur because Kaneko teaches that gasoline should have less than 50 ppm sulfur otherwise the exhaust gas cleaner would malfunction. Also, the greater the amount of sulfur that is present in the fuel the greater the amount of harmful SO_x emissions.

(10) Response to Argument

Appellant argues that the combination of Dorer and Kalghatgi does not teach the claimed invention and that in fact the references teach away from the present invention. Appellant argues that the rejection set forth by the examiner does not define a person of ordinary skill in the art because such person would not find the combination of references obvious. Appellant argues that Dorer does not teach that metal compounds function as detergents that reduce combustion chamber deposits. Appellant argues that

Dorer does not teach reduction in engine deposits with the use of copper but instead teaches that fewer deposits are formed with the use of copper.

Dorer teaches a fuel composition for internal combustion engines comprising metal containing compounds. These compounds included inorganic or organic copper and manganese compounds. Dorer teaches that the combined amount of the manganese and copper compounds is about 1-1000 ppm. While Dorer's objective is to reduce ignition temperature of exhaust particulate, the reference teaches the same or similar fuel composition as that of the present invention. It is well settled that the discovery of a previously unappreciated property of a prior art composition does not render the old composition patentably new to the discoverer. Thus, claiming of a new use, new function or unknown property does not make the claims patentable.

With respect to the person of ordinary skill not finding the combination of Dorer and Kalghatgi obvious, the hypothetical person having ordinary skill in the art to which the claimed subject matter pertains would, of necessity have the capability of understanding the scientific and engineering principles applicable to the pertinent art. *Ex parte Hiyamizu*, 10 USPQ2d 1393, 1394 (Bd. Pat. App. & Inter. 1988). The person of ordinary skill in the art is one who would be able to fit the teachings of Dorer and Kalghatgi together like pieces of a puzzle to determine that the metal compounds of Dorer reduce combustion chamber deposit flaking. One of ordinary skill in the art recognizes that a fuel detergent additive reduces or inhibits the amount of deposits in an engine, and that same skilled artisan having Dorer before him would have recognized that the metal compounds of Dorer function as detergents because Dorer specifically

teaches that the fuel composition of his invention provides “reduction in engine deposits.” See col. 1, lines 50-55.

Appellant argues that the rejections set forth by the examiner all stand on whether Kalghatgi teaches that all detergents reduce deposit flaking. Appellant argues that conclusions 2, 3 and 5 of Kalghatgi teach away from the present invention.

The examiner did not state that all detergents reduce flaking, but that conventional detergents reduce flaking, which is conclusion 2 of Kalghatgi. While Kalghatgi exemplifies five specific detergents, it is clear that Kalghatgi recognizes that the exemplified conventional detergent and others known in the art, and not the experimental detergents reduce flaking. Dorer has disclosed that his compounds are conventional detergent/ignition temperature reducer fuel additives.

Appellant argues that conclusion 3 of Kalghatgi proves that different engines have different combustion chamber flaking problems. The examiner does not dispute this. However, Dorer uses the same fuel in an internal combustion engine, both diesel and gasoline, and if the present fuel composition reduces combustion chamber deposit flaking, it would be more than reasonable to have expected that the fuel compositions of Dorer would also have reduced flaking.

Appellant argues that conclusion 5 of Kalghatgi refutes the examiner’s motivation statement because Kalghatgi teaches that there is no fair correlation between deposits and flaking.

Given that Kalghatgi shows that conventional detergents are effective in reducing deposit flaking, one of ordinary skill in the art would have been led to, not discouraged

from, testing conventional internal combustion engine fuel additives, including those taught by Dorer, through routine experimentation and determine suitable combustion chamber deposit flaking additives, such as those taught by Dorer.

Appellant argues that Dorer does not mention combustion chamber deposit flaking, provides no experimental data regarding flaking, and provides no reason as to why the examiner would have combined the reference with Kalghatgi to arrive at the claimed invention. Appellant refers to the declaration of Mr. Aradi to support this argument. Appellant argues that the examiner is using impermissible hindsight to make the combination.

Dorer teaches a fuel composition that is utilized in internal combustion engines. Appellant has not presented any evidence, neither by the Aradi declaration nor literature, that the engines disclosed in Dorer do not contain advanced emissions controls. Although Dorer does not specifically mention Appellant's benefit of reducing combustion chamber deposit flaking, such benefit would have naturally flowed from following the suggestion of Dorer, especially in view of the teachings of Kalghatgi. *Ex parte Obiaya*, 227 USPQ 56 (BPAI 195) (holding that the recognition of another advantage flowing naturally from following the suggestion of the prior art cannot be the basis for patentability when the difference would otherwise be obvious).

In response to appellant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was

within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Appellant argues that Henderson does not teach that the compositions of his invention contain detergents that reduce combustion chamber deposits. Appellant argues that Henderson will still form deposits and does not reduce or eliminate the formation of deposits.

The examiner maintains that if the claimed compounds reduce deposit flaking in the present invention it would be reasonable to expect that the compounds would perform the same function in Henderson. Although Henderson is not specifically directed to the same advantage as the present invention, a person of ordinary skill in the art utilizing this fuel additive composition in a spark ignited internal combustion engine would necessarily have been practicing the claimed invention. *Mehl/Biophile Int'l Corp v. Milgraum*, 52 USPQ2d 1303 (Fed Cir 1999). *In re Woodruff*, 16 USPQ2d 1934 (Fed Cir 1990). *In re Spada*, 15 USPQ2d 1655 (Fed Cir 1990).

Appellant repeats and realleges his earlier arguments regarding the disclosure of Kalghatgi and the person of skill in the art, and the examiner maintains her position regarding Kalghatgi and the person of skill in the art.

Appellant argues that claims 12 and 26 are directed to direct injection gasoline engines and the Aradi declaration states that the problems relating to combustion

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chamber deposit flaking became an issue upon the use of direct injection gasoline engines.

Appellant has not argued that the fuel additive of Henderson is not the same as the fuel additive utilized in the claimed method. Rather, Appellant argues that Henderson does not recognize that chamber deposit flaking in direct injection engines. The examiner maintains the position that the teaching of an internal combustion gasoline engines encompasses direct injection gasoline engines and that the skilled artisan would be been led to employ the fuel compositions taught by Henderson in an internal combustion engine, such as a known direct injection gasoline engine, with a reasonable expectation of successfully reducing combustion chamber deposit flaking. Furthermore, Kalghatgi teaches that combustion chamber deposit flaking is not limited to direct injection engines. Kalghatgi teaches that the problem appears only in cars which have accumulated some deposits and, usually, only if the car has been driven a very short distance with no chance for the engine to warm up and then parked overnight (see page 1, col. 1, last two paragraphs). This teaching suggests that the problem occurs in non-direct injection engines also. It is also noted that the engine that is used in the present invention is not a direct injection gasoline engine. Therefore, the problem does not appear to be limited to direct injection engines with advanced emissions control, but to all engines that operate within the above driving conditions.

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(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Cephia D. Toomer/
Primary Examiner
Art Unit 1797

Conferees:

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